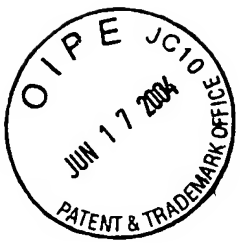

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PATENT
Client-Matter No.: 66692-096

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Daniel S. Sem

Serial No.: 10/672,859

Filed: September 25, 2003

For: MULTI-PARTITE LIGANDS AND METHODS OF IDENTIFYING AND USING SAME

Confirmation No.: 1284

Group Art Unit: 1639

Examiner: Not yet assigned

CERTIFICATE OF FIRST CLASS MAILING
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INFORMATION DISCLOSURE STATEMENT

Sir:

In accordance with 37 C.F.R. § 1.97, enclosed are references relating to the above-identified application. For the convenience of the Examiner, these references are listed on the attached Form PTO-1449, and a copy of each is enclosed herewith.

It is respectfully requested that these references be considered in the examination of this application and that their consideration be made of written record in the application file.

No fee is deemed necessary in connection with the filing of this Information Disclosure Statement. However, if any fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 502624

Respectfully submitted,

June 14, 2004
Date

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Form PTO 1449 US Department of Commerce Patent and Trademark Office	ATTY DOCKET NO: 66692-096	SERIAL NO. 10/672,859
	APPLICANT: Daniel S. Sem	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	FILING DATE: September 25, 2003	GROUP: 1639 CONFIRMATION # 1284

U.S. PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	1.	4,863,876	9/5/89	Richard C. Hevey	436	537	
	2.	5,422,281	6/6/95	Harris et al.	436	501	
	3.	5,527,686	6/18/96	Fitzpatrick et al.	435	7.9	
	4.	5,585,277	12/17/96	Bowie & Pakula	436	518	
	5.	5,658,739	8/19/97	Virgil L. Woods Jr.	435	7.1	
	6.	5,661,019	8/26/97	Oh et al.	435	174	
	7.	5,679,582	10/21/97	Bowie et al.	436	518	
	8.	5,693,515	12/2/97	Clark et al.	435	184	
	9.	5,698,401	12/16/97	Fesik et al.	435	7.1	
	10.	5,710,009	1/20/98	Fitzpatrick et al.	435	7.9	
	11.	5,710,129	1/20/98	Lynch et al.	514	018	
	12.	5,717,092	2/10/98	Armistead et al.	544	129	
	13.	5,723,490	3/3/98	Tung	514	478	
	14.	5,804,390	9/8/98	Fesik & Hajduk	435	7.1	
	15.	5,830,462	11/3/98	Crabtree et al.	424	093.21	
	16.	US2002/ 0141998 A1	10/3/02	Sem, Daniel S.	424	178.1	

FOREIGN PATENT DOCUMENTS

EXAM. INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION (YES/NO)
	17.	WO/89 04315	18/5/89	WIPO			

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages)

	18.	Appelt et al., "Design of enzyme inhibitors using iterative protein crystallographic analysis," J. Med. Chem. 34:1925-1934 (1991)
	19.	Baldock et al., "A mechanism of drug action revealed by structural studies of enoyl reductase," Science 274:2107-2110 (1996)

EXAMINER DATE CONSIDERED_____

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

	20.	Bayomi et al., "Probing the thymidylate synthase active site with bisubstrate analog inhibitors," Nucleosides & Nucleotides 7:103-115 (1988)
	21.	Bellamacina, Cornelia R., "The nicotinamide dinucleotide binding motif: a comparison of nucleotide binding proteins," FASEB J. 10:1257-1269 (1996)
	22.	Bemis and Murcko , "The Properties of Known Drugs. 1. Molecular Frameworks," J. Med. Chem., 118:2359-2365 (1996)
	23.	Bull et al., "Mechanism-based inhibition of human steroid 5α-reductase by finasteride: enzyme-catalyzed formation of NADP-Dihydrofinasteride, a protein bisubstrate analog inhibitor," J. Am. Chem. Soc. 118:2359-2365 (1996)
	24.	Burke, Terrance R., "Protein-tyrosine kinase inhibitors," Drugs of the Future 17:119-131 (1992)
	25.	Chen et al., "Biased combinatorial libraries: novel ligands for the SH3 domain of phosphatidylinositol 3-kinase," J. Am. Chem. Soc. 115:12591-12592 (1993)
	26.	Cohen et al., "Modular binding domains in signal transduction proteins," Cell, 80:237-248 (1995)
	27.	Combs et al., "Protein structure-based combinatorial chemistry: discovery of non-peptide binding elements to Src SH3 domain," J. Am. Soc. 118:287-288 (1996)
	28.	Constantine et al., "Characterization of NADP Binding to Perdeuterated MurB: Backbone Atom NMR Assignments and Chemical-shift Changes," J. Mol. Biol., 267:1223-1246 (1997)
	29.	Dalgarno et al., "SH3 domains and drug design: ligands, structure, and biological function," Biopolymers 43:383-400 (1998)
	30.	Davis et al., "Alterations in chemical shifts and exchange broadening upon peptide boronic acid inhibitor binding to α-lytic protease," J. Biomolecular NMR 10:21-27 (1997)
	31.	Davey and Fenna, "2.3 Å resolution x-ray crystal structure of the bisubstrate analogue inhibitor salicylhydroxamic acid bound to human myeloperoxidase: a model for a prereaction complex with hydrogen peroxide," Biochem. 35:10967-10973 (1996)
	32.	Farmer et al., "Localizing the NADP binding site on the MurB enzyme by NMR," Nat. Structural Biol., 3:995-997 (1996)
	33.	Fejzo et al., "Dynamic NMR studies of ligand-receptor interactions: Design and analysis of a rapidly exchanging complex of RKPB-12/FK506 with a 24 kDa calcineurin fragment," Protein Sci., 5:1917-1921 (1996)
	34.	Fejzo et al., "The SHAPES Strategy: An NMR Based Approach for Lead Generation in Drug Discovery," Abstract MIIA-4 International Conference on Magnetic Resonance in Biological Systems Meeting, Tokyo (1998)
	35.	Feng et al., "Molecular basis for the binding of SH3 ligands with non-peptide elements identified by combinatorial synthesis," Chem. & Biol. 3:661-670 (1996)

	36.	Feng et al., "Specific interactions outside the proline-rich core of two classes of Src homology 3 ligands," Proc. Natl. Acad. Sci. USA, 92:12408-12415 (1995)
	37.	Feng and Schreiber, "Enantiomeric binding elements interacting at the same site of an SH3 protein receptor," J. Am. Chem. Soc. 119:10873-10874 (1997)
	38.	Gray et al., "Exploiting chemical libraries, structure, and genomics in the search for kinase inhibitors," Science 281:533-538 (1998)
	39.	Hajduk et al., "Discovery of potent nonpeptide inhibitors of stromelysin using SAR by NMR," J. Am. Chem. Soc. 119:5818-5827 (1997)
	40.	He et al., "Design and synthesis of new leads for PKC bisubstrate inhibitors," Bioorganic & Medicinal Chemistry Letters 4:2845-2850 (1994)
	41.	Ikeda et al., "Multisubstrate analogs for deoxynucleoside kinases," J. Biol. Chem. 261:15836-15843 (1986)
	42.	Kapoor et al., "Exploring the specificity pockets of two homologous SH3 domains using structure-based, split-pool synthesis and affinity-based selection," J. Am. Chem. Soc. 120:23-29 (1998)
	43.	Labrou et al., "Biomemetic-dye affinity chromatography for the purification of mitochondrial L-malate dehydrogenase from bovine heart," J. Biotechnol., 45:185-194 (1996)
	44.	Labrou et al., "Molecular modeling for the design of a biomimetic chimeric ligand. Application to the purification of bovine heart l-lactate dehydrogenase," Biotechnol. & Bioengineering., 63(3):322-332 (1999)
	45.	Labrou et al., "Molecular modeling for the design of chimaeric biomimetic dye-ligands and their interaction with bovine heart mitochondrial malate dehydrogenase," Biochem. J. 315:695-703 (1996)
	46.	Labrou et al., "Oxaloacetate Decarboxylase: On the Mode of Interaction with Substrate-Mimetic Affinity Ligands," Arch. Biochem. Biophys., 321(1):61-70 (1995)
	47.	Labrou et al., "The Interaction of *Candida boidinii* Formate Dehydrogenase with a New Family of Chimeric Biomimetic Dye-Ligands," Arch. Biochem. Biophys., 316(1):169-178 (1995)
	48.	Levitzki, Alexander, "Tyrphostins: tyrosine kinase blockers as novel antiproliferative agents and dissectors of signal transduction," FASEB J. 6:3275-3282 (1992)
	49.	Medzihradszky et al., "Solid-phase synthesis of adenosine phosphopeptides as potential bisubstrate inhibitors of protein kinases," J. Am. Chem. Soc. 116:9413-9419 (1994)
	50.	Morken et al., "Exploring the leucine-proline binding pocket of the Src SH3 domain using structure-based, split-pool synthesis and affinity-based selection," J. Am. Chem. Soc. 120:30-36 (1998)
	51.	Patel et al., "Phosphinyl acid-based bisubstrate analog inhibitors of Ras farnesyl protein transferase," J. Med. Chem. 38:435-442 (1995)

	52.	Patel et al., "Phenol based tripeptide inhibitors of Ras farnesyl protein transferase," Bioorganic & Medicinal Chem. Letters 4:1883-1888 (1994)
	53.	Pawson, "Protein modules and signaling networks," Nature, 373:573-580 (1995)
	54.	Radzicka and Wolfenden, "Transition state and multisubstrate analog inhibitors," Methods in Enzymology 249:284-303 (1995)
	55.	Reinstein et al., "Fluorescence and NMR investigations on the ligand binding properties of adenylate kinases," Biochem. 29:7440-7450 (1990)
	56.	Rickles et al., "Phage display selection of ligand residues important for Src homology 3 domain binding specificity," Proc. Natl. Acad. Sci. USA, 92:10909-10913 (1995)
	57.	Rossman et al., "Evolutionary and Structural relationships among dehydrogenases," The Enzymes 11:61-102 (1975)
	58.	Rozwarski et al., "Modification of the NADH of the isoniazid target (InhA) from *mycobacterium tuberculosis*," Science 279:98-102 (1998)
	59.	Scheffzek et al., "Crystal structure of the complex of UMP/CMP kinase from *Dictyostelium discoideum* and the bisubstrate inhibitor P^1-(5'-Adenosyl) P^5-(5'-Uridyl) pentaphosphate (UP_5A) and Mg^{2+} at 2.2 Å: implications for water-mediated specificity," Biochem. 35:9716-9727 (1996)
	60.	Sem and Kasper, "Geometric relationship between the nicotinamide and isoalloxazine rings in NADPH-cytochrome P-450 oxidoreductase: implications for the classification of evolutionarily and functionally related flavoproteins," Biochem. 31:3391-3398 (1992)
	61.	Shuker et al., "Discovering high-affinity ligands for proteins: SAR by NMR," Science 274:1531-1534 (1996)
	62.	Sikorski et al., "EPSP synthase: the design and synthesis of bisubstrate inhibitors incorporating novel 3-phosphate mimics," Phosphorus, Sulfur, and Silicon 76:115-118 (1993)
	63.	Suyama et al., "Searching for common sequence patterns among distantly related proteins," Protein Engineering 8:1075-1080 (1995)
	64.	Tartar et al., "Design of PKC inhibitors," Actual. Chim. Thér. 18:167-180 (1991)
	65.	Traxler et al., "Sulfonylbenzoly-Nitrostyrenes: potential bisubstrate type inhibitors of the EGF-receptor tyrosine protein kinase," J. Med. Chem. 34:2328-2337 (1991)
	66.	Venters et al., "Characterizing the Use of Perdeuteration in NMR Studies of Large Proteins: ^{13}C, ^{15}N and ^{1}H Assignments of Human Carbonic Anhydrase II," J. Mol. Biol., 264:1101-1116 (1996)
	67.	Wierenga et al., "Prediction of the occurrence of the ADP-binding βαβ-fold in proteins, using an amino acid sequence fingerprint," J. Mol. Biol. 187:101-107 (1986)
	68.	Wimalasena et al., "Chiral multisubstrate inhibitors of dopamine β-Monoxygenase: evidence for dual modes of interaction," Biochem. 36:7144-7153 (1997)

	69.	Wittekind et al., "Orientation of Peptide Fragments from Sos Proteins Bound to the N-Terminal SH3 Domain of Grb2 Determined by NMR Spectroscopy," Biochem., 33:13531-13539 (1994)
	70.	Yan and Lawrence, "Distinguishing between closely related protein kinases: a variation on the bisustrate inhibitor theme," J. Am. Chem. Soc. 118:6321-6322 (1996)